

Current Results of DPRK Forest Policy and Future Direction of Inter-Korean Forest Cooperation

September 13, 2018

PARK, KYUNG SEOK

National Institute of Forest Science

The Causes of Deforestation in N. Korea

1. Land-use change for making terrace fields

- Since 1976, forests have been transformed into terrace fields.
- Slash-and-burn farming has been practiced to alleviate the food shortage.

2. Overcutting of trees and shrubs for the use of fuel wood

- The consumption of fuel wood has increased due to the economic crisis.
- Even young trees less than 2-3 years after their plantation have been used for fuel wood.



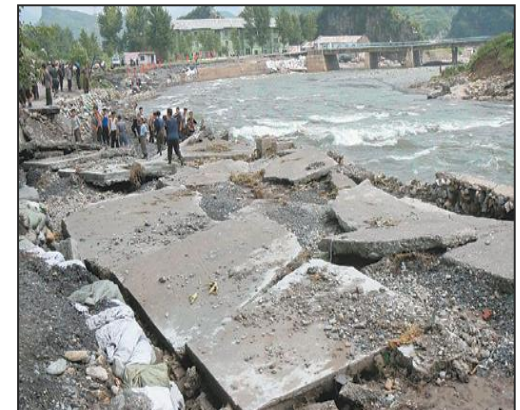
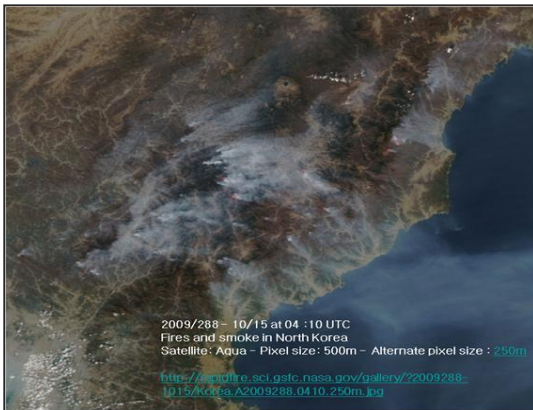
The Causes of Deforestation in N. Korea

3. Damage from forest insects, pests and forest fires

- A total of 250,000 – 500,000 ha of forests were damaged by pine caterpillars and pine gall midges etc. in 2010.
- Forest fires have occurred throughout the nation due to droughts and illegal slash-and-burn farming.

4. Frequent occurrences of natural disasters caused by climate change

- Rated one of the world's most vulnerable countries to climate change (Davos Forum)
- Ranked 7th in the Global Climate Risk Index - Germanwatch
- Yearly, the flow of 40 ~ 60 tons of rock, soil and debris/ha buries agriculture lands and destroys industrial facilities.



The Trends of Forest Devastation in N. Korea

Changes in Forest Cover

- Forest cover : 8.99 M ha (estimated by satellite image analysis, NIFoS)
- Devastated area : 1.63 M ha('99) → 2.84 M ha('08)
 - Decrease of forested area : 8.2 M('90) → 6.8M ('00) → 6.2 M('06) → 5.7 M ha('10)

Devastated Forest : 2.84 M ha (32% of the forest area)

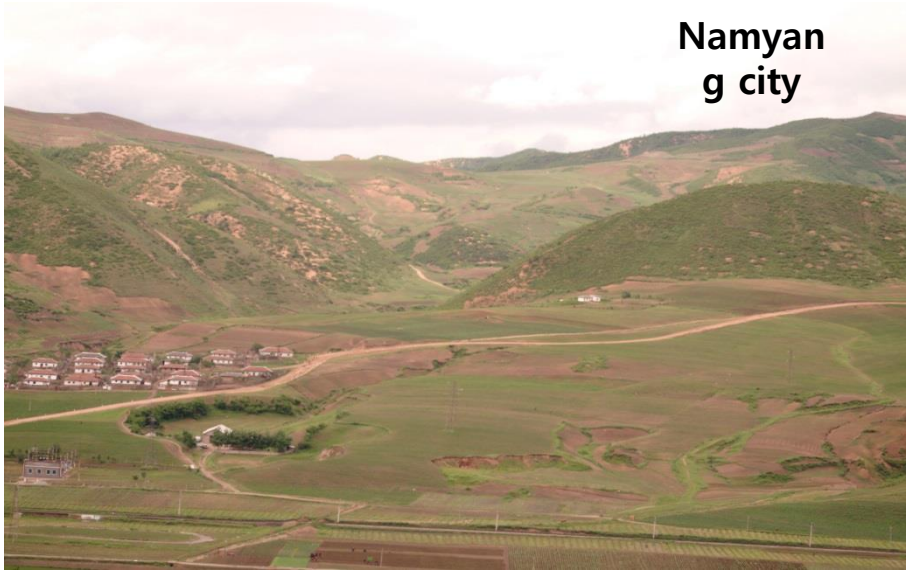
(data from NIFoS)

	Forest (unit: 1,000 ha)					
	Total Area	Forested Area	Devastated Area			
			Total	Clearing	Non-forested	Bare ground
1999	9,166	7,534	1,632(17.8%)	972	534	126
2008	8,993	6,155	2,838(31.6%)	1,322	1,413	103

- The degree of forest devastation has become serious even after 2008.

The Current Situation of Forest Deforestation in N. Korea

Namyang
g city



Hoeryun
g city



Musan
n city

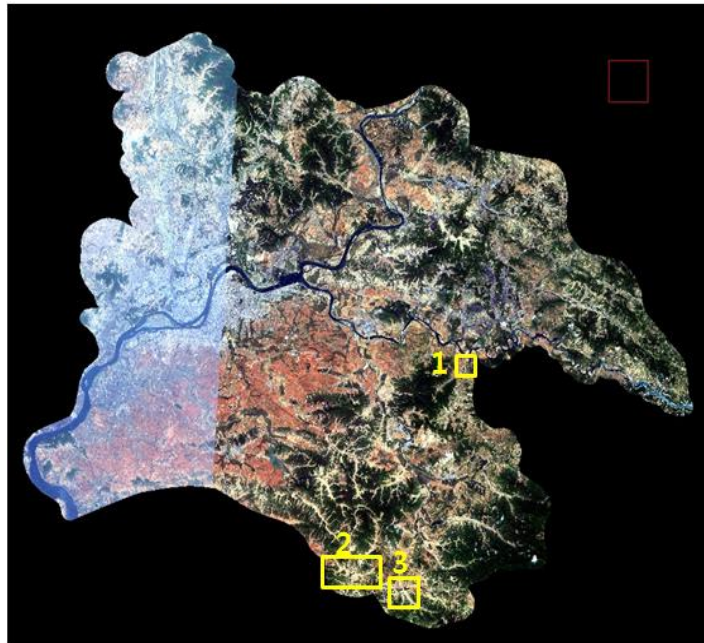


Hyesan
city



The Current Situation of Forest Deforestation in N. Korea

Pyongyang
(RapidEye, 2012.05)



2005 Satellite Images
(SPOT, 2.5m pansharpened)



SPOT 1

2012 Satellite Images
(RapidEye, A height of 5m)



2005 Satellite Images
(SPOT, 2.5m pansharpened)



SPOT 3

2012 Satellite Images
(RapidEye, A height of 5m)



North Korea's Self Effort to Restore Forests

Advance the Industrialization and Scientification
Nursery Business



The nonpower rotary spray device

The industrialization, scientification and epitomization of producing seedlings



Producing seedlings (nonwoven fabrics)
in an industrial way

North Korea's Self Effort to Restore Forests

Reinforcing forest protection policies
(Afforestation for slope land etc.)



Providing the central nursery
with field guides (Oct. 2011)



Reinforcing forest protection policies
(Afforestation on slope land etc.)

Current Results of DPRK Forest Policy

Kim Jeong-eun Regime, expressed its willingness to create forests within a decade

- ❖ Published in “On the revolutionary switch in land management”, April 2012
- ❖ **Acknowledged the failure in forestation** projects so far and **instructed** to **create a nationwide forest** within **a decade**, expressing it as the party's strong goal and will



산림조성과 보호관리사업을 결정적으로 혁신하여 10년안에 벌거숭이산들을 모두 수림화하여야 하겠습니다. 이것은 우리 당의 확고한 결심이며 의지입니다.



지방들에 나가보면 《산림애호》, 《청년림》, 《소년단림》이라고 써붙인 산들가운데도 나무가 거의 없는 산들이 적지 않습니다. 나무를 많이 심고 산림을 보호하기 위한 전당적, 전국가적인 대책을 세워야 합니다.



그래야 당의 결심대로 10년안에 벌거숭이산들을 모두 수림화할수 있으며 산림관리사업을 계속 전망성있게 발전시켜나갈수 있습니다.

모든 산들을 황금산, 보물산으로 만들라는것은 수령님과 장군님의 유훈입니다.

Current Results of DPRK Forest Policy

A 10-year Plan of North-Korean Style Forest Restoration

- ❖ Kim Jeong-eun instructed “On the revolutionary switch in land management”(2012); Acknowledged the failure in forestation projects so far and instructed to create a nationwide forest "within a decade"
- ❖ Developed a “**10-year plan of Forest Restoration**”(2015-2024)



- ❖ Set projected goals for a 10-year plan of North Korean style forest restoration
 - ① To expand fruit-growing, silkworm farming and economic forests
 - ② To utilize forests in a comprehensive way for the development of local economy
 - ③ To improve the livelihoods of local people through the rural development
 - ④ To protect the environment for preventing natural disasters including droughts, floods, etc.
 - ⑤ To ensure food security and improve the livelihood of local people through the development of agriculture and light industry

Current Results of DPRK Forest Policy

A 10-year Plan of North-Korean Style Forest Restoration

- ❖ Conduct agroforestry projects with the support of EUPS (European Union Programme Support) : Made successful cases of 15 agro-forestry groups with 10-15 members in a province as a unit

Considering food and
energy shortage



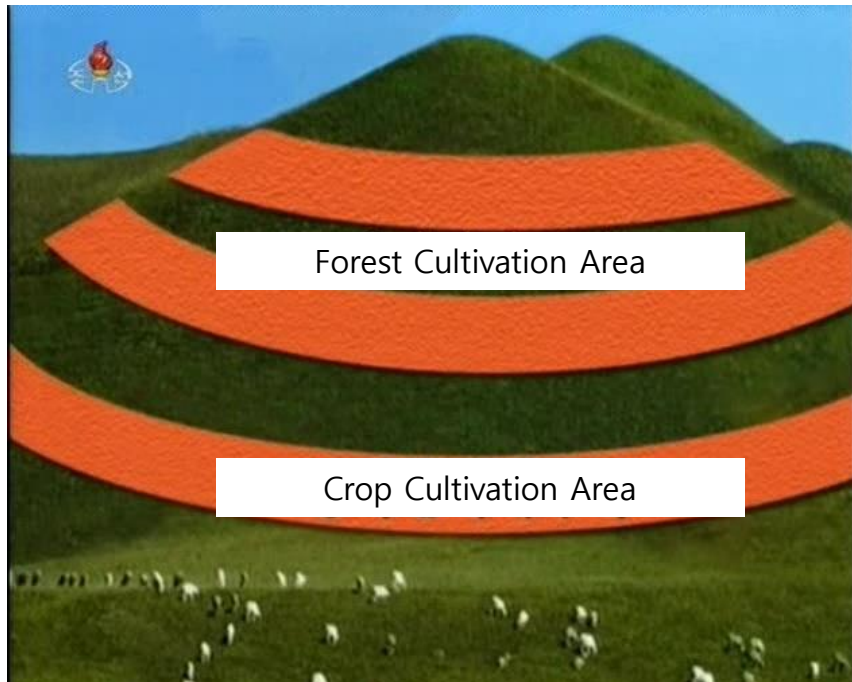
Introducing agroforestry
management system

- ❖ The range of a 10-year plan of forest restoration
 - Agroforestry area to produce food : 150,000ha (2015), a total of 400,000 ha (2023)
 - Area for medicinal herb, berries, mushroom : 200,000ha
 - Grassland for ranching forages : 300,000ha
 - Economic forest producing pulp etc., as a raw material for industry : 500,000ha
 - Forest for providing rural with fuels : 800,000ha

Current Results of DPRK Forest Policy

Introduced an agroforestry management system

- Objective : Preventing **slope land from expanding** and land protection
- Method : Cultivating **the combination of trees, crops and medicinal herb** and planning it to spread nationwide



Current Results of DPRK Forest Policy

A 10-year Plan of North-Korean Style of Forest Restoration

- ❖ Reinforcing administrative power for performance
 - Establish non-permanent consultation agency and permanent executive branch in every nation-province-city-site
 - Investigate subject regions for agroforestry and develop comprehensive future plans for agroforestry
- ❖ Providing guides for skills and training
 - Spread model for agroforestry to over a million farming households and provide expert training
 - Conduct public relations through the media, distribute the reference books including leaflets, provide university courses



Current Results of DPRK Forest Policy

Cultivating the saplings : promoting monolithic modernization in accordance with guidance measures

- ❖ Establish the outdoor rotary atomizing circle cuttings plantation and non-woven nutrient complex forming machine
- ❖ Set up the shading net and natural flow type atomizing irrigation equipment



Current Results of DPRK Forest Policy

Construction of large scale tree nursery : On the performance of hardware installation for show

- ❖ 122 of the Korean People`s Army, a tree nursery : Present an example of standards of provincial tree nursery of 20 million annual production plant
- ❖ Construction of tree nursery of 20 million annual production plant in each province



122 of the Korean People`s Army, a tree nursery (2016.5)



Gangwon-do tree nursery(2018.6)

Current Results of DPRK Forest Policy

Supply the production of forest high efficiency machines for seedling production

- ❖ Realization of industrialization and scientification for seedling production : Tree seed extraction machinery, Direct connected sowing machine, Ridge making machinery etc.

나무종자처리기계



작업능력 : 120kg/h
소요동력 : 2kW
충격날개회전수 : 926r/min
출입압력 : 76.5kpa
길이 : 1 023mm
너비 : 370mm
높이 : 870mm
중량 : 54kg

직결식파종기계



작업능력 : 0.4~0.5정보/h
작업속도 : 5.4km/h
견인동력 : 28HP
작업너비 : 1 100mm
길이 : 1 300mm
너비 : 1 150mm
높이 : 950mm
중량 : 150kg

두둑짓는기계



작업능력 : 0.37정보/h
작업속도 : 4.3km/h
견인동력 : 28HP
작업너비 : 1 200mm
길이 : 1 625mm
너비 : 1 400mm
높이 : 1 100mm
중량 : 176kg

뿌리자름기계



작업능력 : 0.33정보/h
작업속도 : 5.4km/h
견인동력 : 28HP
작업너비 : 700mm
길이 : 735mm
너비 : 1 056mm
높이 : 1 229mm
중량 : 112kg

나무모캐는기계



작업능력 : 0.3정보/h
작업속도 : 5km/h
견인동력 : 28HP
작업너비 : 700mm
뿌리캐는 길이 : 300mm
길이 : 735mm
너비 : 1 056mm
높이 : 1 229mm
중량 : 120kg

Current Results of DPRK Forest Policy

Afforestation : Tree planting to mobilize the masses, Improving survival percent of plantation, Continuous follow-up management after plantation etc.



Current Results of DPRK Forest Policy

Supply of Forest Science and Technology : Urge to afforestation to suit forest science and technology needs

- ❖ Enhance the level of forest science and technology : Set a forest science college in Kim Il Sung University (2017.3), Move by extending the forest research institute building(2018.4)
- ❖ Operate the forest technology supply room in county forest management office : execute the capacity building of county forest management office workers

주체108(2017)년 3월 27일 월요일

로동신문

www.rodong.rep.kp

김일성종합대학에 산림과학대학이 나왔다

주체과학의 최고전당인 김일성종합대학에 산림과학대학이 새로 나왔다.

당의 웅대한 산림복구전투계획을 성과적으로 보장하고 나라의 모든 산들을 청금산, 보물산으로 만들어 국토환경보호사업은 물론 산림부문의 과학기술과 산업을 획기적으로 발전시키는데서 핵심적역할을 하게 될 새로운 인재육성기지가 창설됨으로써 우리 조국의 부강번영을 위한 만년대계의 사업에서 새로운 전환을 가져올수 있게 되었다.

경배하는 최고령도자 김정일동지께서는 다음과 같이 말씀하시었다.

《과학교육의 배에 물배에 전국가각, 전사회적으로 과학교육시설과 환경을 일신시키기 위한 원바람을 일으켜야 합니다.》

경배하는 최고령도자 김정일동지께서는 산림과학부문의 종합적인 인재육성기지를 창설할것을 몸소 밝히시고 이 대학을 김일성종합대학에 내오도록 하여주시었으며 대학창설사업이 최단기간내에 진행될수 있도록 은정깊은 조치를 취해주시었다.

경배하는 원수심의 송고한 꽃배 정한 교육위원회와 고등교육성, 김일성종합대학 일군들의 헌신적인 노력에 의하여 대학창설을 위한 실무적인 사람들이 짧은 기간내에 성과적으로 결속되었다.

교육위원회의 책임일군들과 고등교육성의 해당 부문 일군들은 대학의 교수수준을 세계적높이 추배와 우리 나라의 현실에 맞게 잘 구성하도록 깊은 관심을 돌리고 적극 도와주었다.

김일성종합대학의 일군들은 현대적으로 꾸려진 형사를 통배로 내고 일군들과 교육과학학령을 신속히 꾸려주었으며 교수배품과 교재, 실험실습설비들을 최우선적으로 보장해주었다.

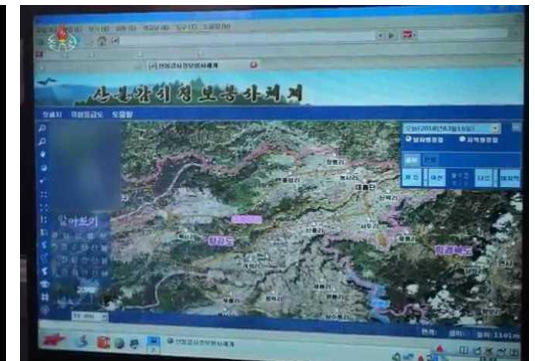
학업 학습소동무를 비롯한 산림과학대학의 일군들은 당조직의 지도밑에 대학의 교육수준을 세계적높이배서 보장할 대담한 목표를 내세우고 조직사업을 제고했었으며 대학관리운영을 위한 토대를 갖추는 사업도 힘있게 내밀어왔다.

김철룡, 원석철, 정영석, 정영석, 조종우장장들을 비롯한 교원들과 연구사들은 자신들의 어깨무에 싣된 무거운 책임감을 자각하고 낮고 밤이 따로 없는 집필전투를 벌였다. 산림과학부문의 발전추세, 세계적인 교육 및 응용실대들을 깊이있게 분석하고 교수에 구형하기 위한 이들의 지혜와 정신력이 최대로 발동되었다. 결과 석달도 안되는 짧은 기간에 산림과학부문의 30여개의 과목들이 개척되고 그에 따르는 교수인들이 적성되었다.새 교재작성뿐아니라 세계일류급대학의 면모에 맞는 새로운 교수수준을 창조하고 강의수준을 높이기 위한 사업도 활발히 진척되었다.

국토환경보호상과 집합성의 일군들도 주인다운 합성에서 이 대학의 교육조건과 환경을 세계적수준으로 보장하는데 필요한 현대적인 교육설비들과 기구들을 수없이 보장해주었다.그리하여 나라의 산림자원의 조성과 보호관리, 종합적관용을 위한 사업들 앞장에서 떠매고나갈 인재들을 키워낼 김일성종합대학 산림과학대학은 첫걸음부터 그쁜한 토대를 갖추고 신상있게 출발할수 있게 되었다.새 학년도부터 공부하게 될 박사원생들과 학생들이 이미 선반되었다.

앞으로 당의 사회주의강국건설구상을 산림과학기술로 역세계에 발들어나갈 인재육성의 원동력으로 더욱 변모될 대학의 교정이 지금 학생들을 기다리고있다.

본사기자 리동한



Achievements and Limitations of Inter-Korean Forest Cooperation before 5.24 Action

Achievements

- ✓ Developing mutual reliance initiative and contributing to technology development
 - ✦ Foundation of Forest for Peace in 1999 and Green One Korea in 2007
 - ✦ Commencement of South-North Forest Cooperation
 - ✦ Development of seedling production technology and plantation of chestnut trees in Mt. Geumgang area
 - ✦ Implementing capacity building programs for AR-CDM

Limits

Insufficient support of finance and specialty

- ✦ Lack of NGOs' specialty in the forest sectors
- ✦ Not-enough fund-raising from NGOs despite the increase of NGOs

Lack of private sector-government cooperation

- ✦ Lack of systems for promoting private sector/private sector and private sector/government cooperation
- ✦ Lack of timely response to circumstantial changes

Lack of consistency and transparency

- ✦ Interruption of cooperative projects due to political issues
- ✦ Lack of monitoring of projects

Future Direction of Inter-Korean Forest Cooperation

- ❖ Established the international cooperation institute to promote private-oriented afforestation with the industry, the government agencies and the institute.
 - Lead the realization of the government's policy titled 『Establishing the environmental community through the Green Detente』
- ❖ Proposed the promotion of afforestation with the cooperation between the two Koreas to the North Korea regime in a suitable moment
 - Formed a consultative group for establishing a successful model of afforestation by the South-North cooperation at the regional level
 - Promoted to graft South Korea's experience of the forest conservation and afforestation onto North Korea's agroforestry management methods



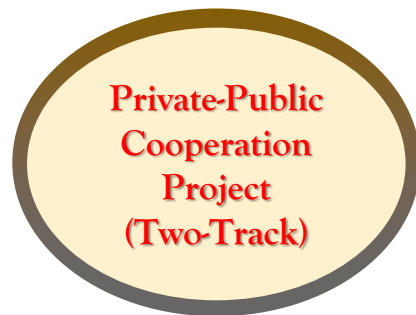
Future Direction of Inter-Korean Forest Cooperation

- ❖ Gradually promoting as the private-public cooperation project
 - Private Funding + CDM projects of private company + International NGO + International organizations



Future Direction of Inter-Korean Forest Cooperation

- ❖ Two-Track method is utilized for the private sector to develop the new sites for North Korea's afforestation and for the government to scale the sites and make the suitable system for them



■ It is a way that the sites, newly found by the private organizations, are gradually scaled out to the subjects of inter-governmental business.

- **Private Sector :** Secure as many new strategic sites as possible
- **Government:** Scale out the afforestation projects in the strategic sites and establish the relevant infrastructures and systems for the sites

Future Direction of Inter-Korean Forest Cooperation

Reforestation in N. Korea → ecosystem restoration of Korea peninsula



Cooperation project for Forest Restoration

Establishment of the basis for Forest Restoration

- modernization of tree nurseries and reinforcement of productivity -

◆ Necessity

- Modernization and renovation of cities and counties tree nurseries for seedling production suitable climate and soil in N. Korea
- Establishment of large-scale nursery facilities in each province for increasing demand of seedlings

◆ Project activities

- Promote for tree nursery modernization of cities and counties
- Establishment of large-scale facility cultivating seedlings in each province



◁ Central nursery in Sun-an,
Pyongyang ('07~'10, 10ha)

Nusery facility in mountain
Geumgang ('07~'09, 3ha)



Cooperation project for Forest Restoration

Promote urgent customized afforestation projects

◆ Necessity

- Promote urgent customized afforestation projects after selection on the regional forest restoration priority
 - landsliding danger area around the house, farmland buried area, road slope collapse area etc.

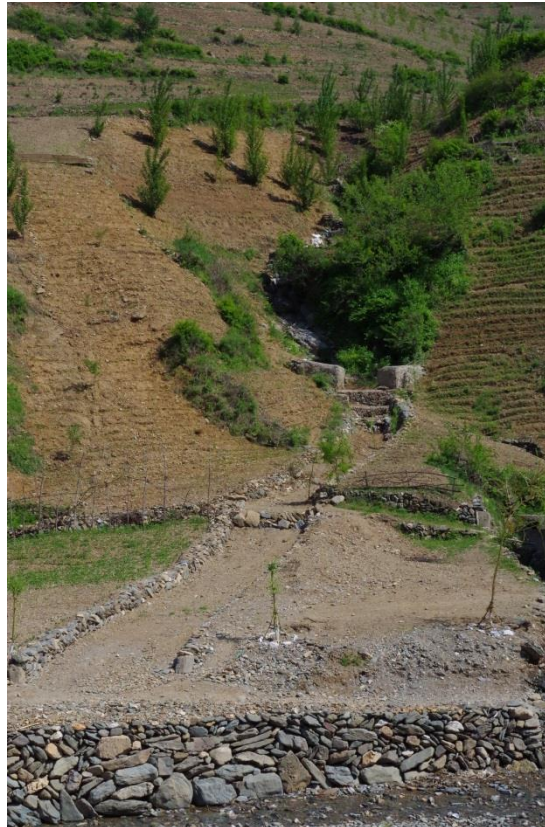
◆ Project activities

- Afforestation for erosion control using the number of rapid growth trees
- Afforestation for protection of farmland and watershed conservation in the upper region



Cooperation project for Forest Restoration

Execution of urgent erosion control projects
in danger zone landslide



Cooperation project for Forest Restoration

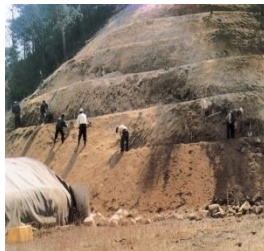
Execution of urgent erosion control projects in danger zone landslide

◆ Necessity

- Prevention of flood damage on inter-korean border caused by devastated forest of the upper Imjin-river
- Prevention of human losses and economic damage caused by frequency of scale-up natural disaster

◆ Project activities

- Landslide-prevention activities for cultivated forest , unstocked forest and devastated forest of the upper Imjin-river
- Prevention of soil erosion, stream stabilisation and tree planting, etc. in each village



◁ forest-land erosion control works

Cooperation project for Forest Restoration

Control activities of forest disease and pest for a dense forest

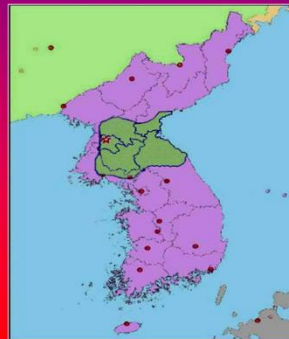
2009년이후송충발생지역분포도



서해안 낮은지대에 집중 분포.

내륙지대로 점차 확대.

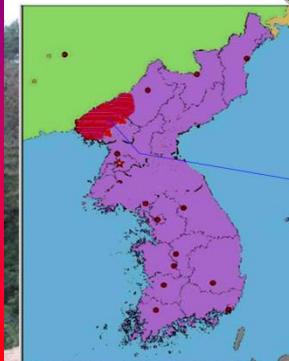
2009년도솔잎혹파리분포실태



함흥-홍원 등 북으로 분포.
평남도 등 서쪽으로 확대.
서남쪽 황해남도 벽성군 등
으로 확산

※ 금강산, 룡악산, 정방산, 동명왕릉 등 에서 1차피해, 점차 만연해

소나무좀각지벌레 발생분포지역



압록강연안, 청천강이북의
평안북도 지역에 분포

소나무재선충병발생동태



2006년부터
강원도 통천지구,
평양시 일부 지역,
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에서 발생확인

참나무시뽕병발생동태



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씨비리송충발생동태



• 2000년부터 백두산지구
위주로 량강도와
함경북도일대에서 발생
하여 확대

Cooperation project for Forest Restoration

Control activities of forest disease and pest for a dense forest

◆ Necessity

- Prevention of the spread of forest disease and pests that occurred in exsisting forests
- Urgent control activities of forest disease and pest for a scenic spot forest protection in the context of unification land management

◆ Project activities

- Implementation of rapid insect pest control for the affected area(Geumgang, Bekdu mountain etc.)



◁ pine midge damage area
investigation and tree injection

Demonstration of control pine
moth damaged area



Cooperation project for Forest Restoration

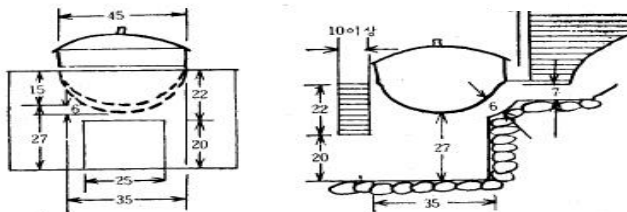
Supply of briquette and improvement of furnace for the prevention of forest devastation

◆ Necessity

- Supply of briquette for the prevention of forest devastation from cutting fuel woods in order to ensure the effectiveness of afforestation
- Improvement of furnace for the briquette to substitute the demand of fuel woods

◆ Project activities

- To supply briquette directly to the North Korean living in areas ongoing afforestation
- Introduction of skills for improvement of furnaces and carry out local resident's training



△ Advanced furnace structure map



△ Advanced furnace in N. Korea

Implementing System for Inter-Korean Forest Cooperation

Location	<ul style="list-style-type: none"> • Designating special sites for forest - Developing a success model of reforestation/Gyeseong,Mt.Geumgang, Pyeongyang
Body in Charge	<ul style="list-style-type: none"> • N. Korea Reforestation Agency(provisional name)/ establishing private sector-government cooperative governance - Participation of government, private sectors and technical advisory groups
Implementing Methods	<ul style="list-style-type: none"> • Linking with society development programs/ supplying food and energy/ improving housing conditions - Expecting successful reforestation in cooperation with forest-related sectors
Foundation	<ul style="list-style-type: none"> • Legislation : revision of forest-related laws or enactment of special law • Finance : North-South Cooperation Fund from Ministry of Unification Making an effort to raise special fund from private sectors • Capacity Building : Strengthening capacity of NGOs involved in the programs of reforestation of N. Korea

*Afforestation in the entire Korean peninsula
would be impossible*

*Without the cooperation between North and
South Korea*

